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**PHILOSOPHICAL
TRANSACTIONS**

OF THE

ROYAL SOCIETY

OF

LONDON.

FOR THE YEAR MDCCCLV.

VOL. 145.

LONDON:

PRINTED BY RICHARD TAYLOR AND WILLIAM FRANCIS, RED LION COURT, FLEET STREET.

MDCCCLV.

CONTENTS

OF VOL. 145.

- I. THE BAKERIAN LECTURE.—*On the Nature of the Force by which Bodies are repelled from the Poles of a Magnet; to which is prefixed, an Account of some Experiments on Molecular Influences.* By JOHN TYNDALL, Ph.D., F.R.S., Membre de la Société Hollandaise des Sciences; Foreign Member of the Physical Society of Berlin, and Professor of Natural Philosophy in the Royal Institution. page 1
- II. *On the Attraction of the Himalaya Mountains, and of the elevated Regions beyond them, upon the Plumb-line in India.* By the Venerable JOHN HENRY PRATT, M.A., Archdeacon of Calcutta. Communicated by the Rev. J. CHALLIS, M.A., F.R.S. &c. 53
- III. *On the Computation of the Effect of the Attraction of Mountain-masses, as disturbing the Apparent Astronomical Latitude of Stations in Geodetic Surveys.* By G. B. AIRY, Esq., Astronomer Royal 101
- IV. *An Account of some recent Researches near Cairo, undertaken with the view of throwing light upon the Geological History of the Alluvial Land of Egypt.—Instituted by* LEONARD HORNER, Esq., F.R.SS. L. & E., F.G.S. 105
- V. *Observations on the Respiratory Movements of Insects.* By the late WILLIAM FREDERICK BARLOW, F.R.C.S. Arranged and communicated by JAMES PAGET, F.R.S. 139
- VI. *On the Structure of certain Limestone Nodules enclosed in seams of Bituminous Coal, with a Description of some Trigonocarpons contained in them.* By JOSEPH DALTON HOOKER, M.D., and EDWARD WILLIAM BINNEY, Esq. . . 149
- VII. *On the Theory of Definite Integrals.* By W. H. L. RUSSELL, Esq., B.A. Communicated by A. CAYLEY, Esq., F.R.S. 157
- VIII. *On Circumstances modifying the Action of Chemical Affinity.* By J. H. GLADSTONE, Ph.D., F.R.S. 179

IX. <i>On the existence of an element of Strength in Beams subjected to Transverse Strain, arising from the Lateral Action of the fibres or particles on each other, and named by the author the 'Resistance of Flexure.'</i> By WILLIAM HENRY BARLOW, Esq., F.R.S.	225
X. <i>On the Development of Striated Muscular Fibre in Mammalia.</i> By WILLIAM S. SAVORY, Tutor and Demonstrator of Anatomy of St. Bartholomew's Hospital Medical College. Presented by JAMES PAGET, F.R.S.	243
XI. <i>Researches on Organo-metallic Bodies.</i> —Second Memoir. <i>Zincethyl.</i> By E. FRANKLAND, Ph.D., F.R.S., Professor of Chemistry in Owens College, Manchester	259
XII. <i>On the Anatomy of Nautilus umbilicatus, compared with that of Nautilus Pompius.</i> By JOHN DENIS MACDONALD, R.N., Assistant-Surgeon of H.M.S.V. 'Torch,' commanded by Lieut. WILLIAM CHIMMO, R.N., tender to H.M.S. 'Herald,' Captain H. M. DENHAM, R.N., F.R.S., commanding the Expedition to the South Seas. Communicated by Sir WILLIAM BURNETT, K.C.B. &c.	277
XIII. <i>Remarks on the Anatomy of Macgillivrayia pelagica and Cheletropis Huxleyi (FORBES); suggesting the establishment of a new Order of Gasteropoda.</i> By JOHN D. MACDONALD, R.N., Assistant-Surgeon H.M.S. 'Herald.' Communicated by Sir W. BURNETT, K.C.B. &c.	289
XIV. <i>Further Observations on the Anatomy of Macgillivrayia, Cheletropis, and allied genera of pelagic Gasteropoda.</i> By JOHN DENIS MACDONALD, R.N., Assistant-Surgeon H.M.S.V. 'Torch.' Communicated by Sir WILLIAM BURNETT, K.C.B. &c.	295
XV. <i>On a Class of Differential Equations, including those which occur in Dynamical Problems.</i> —Part II. By W. F. DONKIN, M.A., F.R.S., F.R.A.S., Savilian Professor of Astronomy in the University of Oxford	299
XVI. <i>On the Megatherium (Megatherium Americanum, CUVIER and BLUMENBACH).</i> Part II.— <i>Vertebrae of the Trunk.</i> By Professor OWEN, F.R.S. &c.	359
XVII. <i>On Rubian and its Products of Decomposition.</i> By EDWARD SCHUNCK, F.R.S.	389
<i>Index</i>	421

APPENDIX.

<i>Presents</i>	[1]
---------------------------	-------

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VOL. 145.—PART I.

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ADVERTISEMENT.

THE Committee appointed by the *Royal Society* to direct the publication of the *Philosophical Transactions*, take this opportunity to acquaint the Public, that it fully appears, as well from the Council-books and Journals of the Society, as from repeated declarations which have been made in several former *Transactions*, that the printing of them was always, from time to time, the single act of the respective Secretaries till the Forty-seventh Volume; the Society, as a Body, never interesting themselves any further in their publication, than by occasionally recommending the revival of them to some of their Secretaries, when, from the particular circumstances of their affairs, the *Transactions* had happened for any length of time to be intermitted. And this seems principally to have been done with a view to satisfy the Public, that their usual meetings were then continued, for the improvement of knowledge, and benefit of mankind, the great ends of their first institution by the Royal Charters, and which they have ever since steadily pursued.

But the Society being of late years greatly enlarged, and their communications more numerous, it was thought advisable that a Committee of their members should be appointed, to reconsider the papers read before them, and select out of them such as they should judge most proper for publication in the future *Transactions*; which was accordingly done upon the 26th of March 1752. And the grounds of their choice are, and will continue to be, the importance and singularity of the subjects, or the advantageous manner of treating them; without pretending to answer for the certainty of the facts, or propriety of the reasonings, contained in the several papers so published, which must still rest on the credit or judgement of their respective authors.

It is likewise necessary on this occasion to remark, that it is an established rule of the Society, to which they will always adhere, never to give their opinion, as a Body,

upon any subject, either of Nature or Art, that comes before them. And therefore the thanks, which are frequently proposed from the Chair, to be given to the authors of such papers as are read at their accustomed meetings, or to the persons through whose hands they received them, are to be considered in no other light than as a matter of civility, in return for the respect shown to the Society by those communications. The like also is to be said with regard to the several projects, inventions, and curiosities of various kinds, which are often exhibited to the Society; the authors whereof, or those who exhibit them, frequently take the liberty to report and even to certify in the public newspapers, that they have met with the highest applause and approbation. And therefore it is hoped that no regard will hereafter be paid to such reports and public notices; which in some instances have been too lightly credited, to the dishonour of the Society.

The Meteorological Journal hitherto kept by the Assistant Secretary at the Apartments of the Royal Society, by order of the President and Council, and published in the Philosophical Transactions, has been discontinued. The Government, on the recommendation of the President and Council, has established at the Royal Observatory at Greenwich, under the superintendence of the Astronomer Royal, a Magnetic and Meteorological Observatory, where observations are made on an extended scale, which are regularly published. These, which correspond with the grand scheme of observations now carrying out in different parts of the globe, supersede the necessity of a continuance of the observations made at the Apartments of the Royal Society, which could not be rendered so perfect as was desirable, on account of the imperfections of the locality and the multiplied duties of the observer.

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Younghusband, Capt., R.A. . .	Woolwich.

CONTENTS.

- I. THE BAKERIAN LECTURE.—*On the Nature of the Force by which Bodies are repelled from the Poles of a Magnet; to which is prefixed, an Account of some Experiments on Molecular Influences.* By JOHN TYNDALL, Ph.D., F.R.S., Membre de la Société Hollandaise des Sciences; Foreign Member of the Physical Society of Berlin, and Professor of Natural Philosophy in the Royal Institution. page 1
- II. *On the Attraction of the Himalaya Mountains, and of the elevated Regions beyond them, upon the Plumb-line in India.* By the Venerable JOHN HENRY PRATT, M.A., Archdeacon of Calcutta. Communicated by the Rev. J. CHALLIS, M.A., F.R.S. &c. 53
- III. *On the Computation of the Effect of the Attraction of Mountain-masses, as disturbing the Apparent Astronomical Latitude of Stations in Geodetic Surveys.* By G. B. AIRY, Esq., Astronomer Royal 101
- IV. *An Account of some recent Researches near Cairo, undertaken with the view of throwing light upon the Geological History of the Alluvial Land of Egypt.—Instituted by* LEONARD HORNER, Esq., F.R.SS. L. & E., F.G.S. 105
- V. *Observations on the Respiratory Movements of Insects.* By the late WILLIAM FREDERICK BARLOW, F.R.C.S. Arranged and communicated by JAMES PAGET, F.R.S. 139
- VI. *On the Structure of certain Limestone Nodules enclosed in seams of Bituminous Coal, with a Description of some Trigonocarpons contained in them.* By JOSEPH DALTON HOOKER, M.D., and EDWARD WILLIAM BINNEY, Esq. . . 149
- VII. *On the Theory of Definite Integrals.* By W. H. L. RUSSELL, Esq., B.A. Communicated by A. CAYLEY, Esq., F.R.S. 157

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MDCCCLV.

ADJUDICATION of the MEDALS of the ROYAL SOCIETY for the year 1855 by
the PRESIDENT and COUNCIL.

The COPLEY MEDAL to M. LÉON FOUCAULT, for his various researches in Experimental Physics.

A ROYAL MEDAL to JOHN RUSSELL HIND, Esq., Superintendent of the Nautical Almanack, for his discovery of ten Planetoids, the computation of their orbits, and various other astronomical discoveries.

A ROYAL MEDAL to JOHN OBADIAH WESTWOOD, Esq., for his various Monographs and Papers on Entomology.

The BAKERIAN LECTURE was delivered by JOHN TYNDALL, PHD., F.R.S., Professor of Natural Philosophy in the Royal Institution, and entitled “On the Nature of the Force by which Bodies are repelled from the Poles of a Magnet ; to which is prefixed, an Account of some Experiments on Molecular Influences.”

C O N T E N T S.

- VIII. *On Circumstances modifying the Action of Chemical Affinity.* By J. H. GLADSTONE, *Ph.D.*, *F.R.S.* page 179
- IX. *On the existence of an element of Strength in Beams subjected to Transverse Strain, arising from the Lateral Action of the fibres or particles on each other, and named by the author the 'Resistance of Flexure.'* By WILLIAM HENRY BARLOW, *Esq.*, *F.R.S.* 225
- X. *On the Development of Striated Muscular Fibre in Mammalia.* By WILLIAM S. SAVORY, *Tutor and Demonstrator of Anatomy of St. Bartholomew's Hospital Medical College.* Presented by JAMES PAGET, *F.R.S.* 243
- XI. *Researches on Organo-metallic Bodies.—Second Memoir. Zincethyl.* By E. FRANKLAND, *Ph.D.*, *F.R.S.*, *Professor of Chemistry in Owens College, Manchester* 259
- XII. *On the Anatomy of Nautilus umbilicatus, compared with that of Nautilus Pompius.* By JOHN DENIS MACDONALD, *R.N.*, *Assistant-Surgeon of H.M.S.V. 'Torch,'* commanded by Lieut. WILLIAM CHIMMO, *R.N.*, tender to *H.M.S. 'Herald,'* Captain H. M. DENHAM, *R.N.*, *F.R.S.*, commanding the *Expedition to the South Seas.* Communicated by Sir WILLIAM BURNETT, *K.C.B.* &c. 277
- XIII. *Remarks on the Anatomy of Macgillivrayia pelagica and Cheletropis Huxleyi (FORBES); suggesting the establishment of a new Order of Gasteropoda.* By JOHN D. MACDONALD, *R.N.*, *Assistant-Surgeon H.M.S. 'Herald.'* Communicated by Sir W. BURNETT, *K.C.B.* &c. 289
- XIV. *Further Observations on the Anatomy of Macgillivrayia, Cheletropis, and allied genera of pelagic Gasteropoda.* By JOHN DENIS MACDONALD, *R.N.*, *Assistant-Surgeon H.M.S.V. 'Torch.'* Communicated by Sir WILLIAM BURNETT, *K.C.B.* &c. 295

XV. <i>On a Class of Differential Equations, including those which occur in Dynamical Problems.—Part II. By W. F. DONKIN, M.A., F.R.S., F.R.A.S., Savilian Professor of Astronomy in the University of Oxford</i>	299
XVI. <i>On the Megatherium (Megatherium Americanum, CUVIER and BLUMENBACH). Part II.—Vertebræ of the Trunk. By Professor OWEN, F.R.S. &c. . .</i>	359
XVII. <i>On Rubian and its Products of Decomposition. By EDWARD SCHUNCK, F.R.S.</i>	389
 <i>Index</i>	 421

APPENDIX.

<i>Presents</i>	[1]
---------------------------	-------